

## CLAIMS

1. Optical fibre cable comprising a longitudinal cavity in which is inserted at least one optical fibre (3), characterized in that a mixture of powders (11) comprising

- a first fraction of water-mediated expanding powder and

- a second fraction of an inert powder with a preset particle size, less than that of the said water-mediated expanding powder,

is inserted into the said cavity,

the said first and second fractions and the said preset particle size of the inert powder being selected in such a way as:

- to limit the penetration of water in twenty-four hours along the said cavity to within a distance of less than three metres from the point of ingress of the said water, and

- to bring about an increase in attenuation in the said optical fibre, after it has been housed in the said cavity, of less than 0.02 dB/km relative to the value of the non-cabled optical fibre.

2. Optical fibre cable according to Claim 1, characterized in that the said fraction of water-mediated expanding powder is between 40% and 80% by weight of the said mixture.

3. Optical fibre cable according to Claim 1, characterized in that the said preset particle size of the said inert powder is such that at least 90% by weight of the said inert powder is less than 40  $\mu$ m in size.

4. Optical fibre cable according to Claim 1, characterized in that the said inert powder is a material chosen from talc, graphite, molybdenum disulphide or PTFE in powder form.

5. Optical fibre cable according to Claim 4, characterized in that the said inert powder is talc.

6. Cable according to Claim 1, characterized in that the said water-mediated expanding powder is poly(sodium acrylate).

5 7. Optical fibre cable according to Claim 1, characterized in that the said water-mediated expanding powder has a particle size such that at least 90% by weight of the said inert powder is less than 80  $\mu\text{m}$  in size.

10 8. Optical fibre cable according to Claim 1, characterized in that the said cavity is a substantially tubular cavity with an inside diameter of less than 1.7 mm.

15 9. Cable according to Claim 1, characterized in that it further comprises an inner tube (4) in which is loosely housed at least one tube (2), inside which is defined the said tubular cavity.

10. Cable according to Claim 8, characterized in that a fluid stopper is inserted in the space between the said tubes (2) and the said inner tube (4).

20 11. Cable according to Claim 9, characterized in that the said fluid stopper comprises a polysiloxane.

12. Cable according to Claim 9, characterized in that the said fluid stopper comprises water-mediated expanding powder.

25 13. Cable according to Claim 8, characterized in that the said tubes are made of a mixture comprising an ethylene/vinyl acetate copolymer.

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